REMARKS

In the aforementioned final Office Action dated 02/07/2006, the Examiner rejected claims 1, 2, 8 and 15-22 as being unpatentable under 35 USC §102(b) over Buckley, U.S. Patent No. 5,463,219. Claims 3-7, 9-13, 23-33 and 35-40 were additionally or alternatively rejected under §103(a) as being unpatentable over Buckley (U.S. Patent No. 5,463,219) in view of Shimomura (U.S. Patent No. 6,265,714). Claims 14 and 34 were additionally or alternatively rejected under §103(a) as being unpatentable over Buckley (U.S. Patent No. 5,463,219) and Shimomura (U.S. Patent No. 6,265,714) in further view of Kammei (U.S. Patent No. 6,674,068). By this communication, claims 1-3, 6-7, 21-23, and 26-27 have been canceled, and claims 4, 5, 8, 10, 14-20, 24, 28, 30, and 34-40 have been amended to better clarify the invention. Claims 4-5, 8-20, 24-25, 28-40 are now pending. Applicant respectfully requests reconsideration of the application in view of the remarks set forth below.

Applicants comment on Examiner's Response to Arguments

Prior to discussing the specific rejections, Applicant offers the following comment on the Examiner's Response to Arguments, which started on Page 8 of the Final Office Action. Applicant believes that the comment on the present Application may assist the Examiner to understand how the present Application differ from the claimed subject matter of the references.

The present Application enables one to calculate the detector gain directly from the ion intensity measurements, as recited in the claims currently under consideration. The Applicant's published specification paragraphs [0050], [0051], [0060], and [0061], merely provide the mathematical details for implementing the techniques that are claimed and described in the specification. Applicant has provided the relationships specified in these paragraphs for derivation purposes only.

It is stated in paragraph [0050] that there is a relationship between the gain (G), the mean intensity ($\bar{\mu}_I$), the transfer function of the detector electronic circuitry (k, which is known) and the ions detected (N). The mathematical formulae that appear between paragraphs [0050] and [0061] merely serve to provide a relationship between G and the ion intensities directly, without the need to measure or determine N. This relationship is provided by substituting for the term N found in the equation, thus removing the need to actually calculate or determine the value of N itself and eventually deriving the relationship identified in paragraph

[0062] as published, $G = \dfrac{\overline{I_{ma}} * \sigma_{mR}{}^2}{k\left(\overline{I_{mR}}\right)^2 \left(1 + \overline{I_{mR}}\right)}$. The equation for N_a that appears in paragraph

[0060] therefore merely shows how a relationship between the average ion intensity ratio, $\overline{I_{mR}}$, and its associated standard deviation σ_{mR} can be substituted for N. In this manner, calculation of the detector gain G is straight forward using the transfer function of the detector electronics, k, the measured average intensity of the single peak, $\overline{I_{ma}}$, the average ion intensity ratio, $\overline{I_{mR}}$, and its associated standard deviation σ_{mR}. Contrary to the Examiner's interpretation, no determination of the number of ions N is actually required to attain the detector gain G. The relationship does not require the performance of an intervening step to be executed by the applicant between the acquisition of the ion intensity measurements and the calculation of gain. The detector gain is therefore calculated directly from ion intensity measurements, as recited in the current claims.

Similarly, other relationships can be determined which similarly do not require the determination of N to attain a value for the detector gain G, and these relationships can be found

in paragraphs [0065] $G = \dfrac{\sigma_{mD}{}^2}{k * \left(\overline{I_{ma} + I_{mb}}\right)}$ and [0073] $G = \dfrac{I_{mb}{}^2 \sigma_{ma}{}^2 - I_{ma}{}^2 \sigma_{mb}{}^2}{k * \overline{I_{mb}} * \overline{I_{ma}} \left(\overline{I_{mb} - I_{ma}}\right)}$. Neither of

these relationships require the performance of an intervening step that is executed by the applicant between the acquisition of the ion intensity measurements and the calculation of gain. The detector gain is therefore calculated directly from ion intensity measurements, as recited in the current claims.

Allowable Subject Matter

Claims 4, 5, 24 and 25 were objected to as being dependent upon a rejected base claim, however the Examiner indicated that they would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant has rewritten the claims to include all the limitations of the base claim and any intervening claims, and it is submitted that these claims are now in condition for allowance and such favorable action is respectfully requested.

Rejections Under 35 USC §102(b)

Rejections Based on Buckley

Claims 1, 2, 8 and 15-22 were rejected under 35 USC §102(b) as being clearly anticipated by Buckley (US Patent No. 5,463,219). Applicant traverses these rejections as applied to the amended claims. Applicant submits that each of the currently amended claims recites at least one element that is not disclosed or suggested by Buckley, and that the §102(b) rejection should consequently be withdrawn.

Claims 1, 2, 21 and 22 have been canceled by Applicant. Claims 8, and 15-18 as amended, all depends from Claim 4, which the Examiner considered allowable if rewritten to include all of the limitations of the base claim and any intervening claims. Hence, Claims 8 and 15-18 are not anticipated by Buckley as they recite methods of operating a mass spectrometer, the mass spectrometer including a source of ions, a mass analyzer and a detector, wherein the methods include calculating a ratio of intensity values for at least two ions having different m/z values, and calculating a gain based at least in part on the ratio of intensity values. This limitation is not taught or suggest by the Buckley reference. Claims 19 and 20, though independent claims, have been rewritten to include the limitation of calculating the ratio of intensity values for at least two ions having different m/z values; and calculating a gain based at least in part on the ratio of intensity values.

In light of the above discussion and comments, applicant submits that Claims, 8 and 15-22 are patentable over Buckley, and withdrawal of the §102(b) rejection is therefore respectfully requested.

Rejections Under 35 USC §103(a)

Rejections Based on Buckley in view of Shimomura

Claims 3-7, 9-13, 23-33, and 35-40 were rejected under §103(a) as being unpatentable over Buckley in view of Shimomura (U.S. Patent No. 6,265,714). Applicant traverses these rejections as applied to the amended claims. Applicant submits that each of the currently amended claims recites at least one element that is not disclosed or suggested by Buckley in view of Shimormura, and that the §103(a) rejection should consequently be withdrawn.

Claims 3, 6-7, 23, and 26-27 have been cancelled by Applicant. Claims 4-5 and 24-25 as indicated in the telephone call on April 5, 2006 were in fact allowed and should not have been included in this particular basis for rejection. Claims 9-13 ultimately depend from claim 8, and claim 8 as amended, depends from Claim 4, which the Examiner considered allowable if rewritten to include all of the limitations of the base claim and any intervening claims. Hence, Claims 9-13 are not anticipated by Buckley as they recites methods of operating a mass spectrometer, the mass spectrometer including a source of ions, a mass analyzer and a detector, wherein the methods include calculating a ratio of intensity values for at least two ions having different m/z values, and calculating a gain based at least in part on the ratio of intensity values. This limitation is not taught or suggest by the Buckley reference. Claims 28, and 34-38 have been rewritten to depend from claim 24, and hence includes the limitation of calculating the ratio of intensity values for at least two ions having different m/z values; and calculating the number of ions based at least in part on the ratio of intensity values. Claims 29-33 ultimately depend from Claim 28 and hence also include this limitation. Claim 39 and 40 have similarly been rewritten to include the limitation of calculating a ratio of intensity values for at least two

ions having different m/z values, and calculating the number of ions being detected by the detector based at least in part on the ratio of intensity values.

In light of the above discussion and comments, applicant submits that Claims 3-5, 9-13, 24-25, 28-33, and 35-40, are patentable over Buckley in view of Shimormura, and withdrawal of the §103(a) rejection is therefore respectfully requested.

Rejections Based on Buckley and Shimomura in view of Kammei

Claims 14 and 34 were rejected under §103(a) as being unpatentable over Buckley and in Shimomura in view of Kammei (U.S. Patent No. 6,674,068). Applicant traverses these rejections as applied to the amended claims. Applicant submits that each of the currently amended claims recites at least one element that is not disclosed or suggested by Buckley and Shimomura in view of Kammei, and that the §103(a) rejection should consequently be withdrawn.

Claim 14 has been rewritten to depend from claim 4, and hence includes the limitation of calculating the ratio of intensity values for at least two ions having different m/z values; and calculating the gain of the detector based at least in part on the ratio of intensity values. Claim 34 has been rewritten to depend from claim 24, and hence includes the limitation of calculating a ratio of intensity values for at least two ions having different m/z values; and calculating the number of ions based at least in part on the ratio of intensity values.

In light of the above discussion and comments, applicant submits that Claims 14 and 34 are patentable over Buckley and Shimomura in view of Kammie, and withdrawal of the §103(a) rejection is therefore respectfully requested.

In view of the above discussion, it is submitted that the Application is now in condition for allowance and such favorable action is respectfully requested. The Examiner is invited to
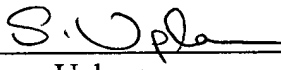
contact the undersigned Applicant's representative by telephone if he believes that doing so will be helpful to resolve any outstanding issues and advance the prosecution of the Application.

It is believed that no fee is due however the Commissioner is hereby authorized to charge any fees which may be required, or to credit any overpayment, to Deposit Account No. 50-3267.

Respectfully submitted,

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